



Indian and
Northern Affairs

Affaires indiennes
et du Nord

c.c. Mr. S. Goudge
~~1975~~ Mackenzie Valley Pipeline Inquiry

#499

Ottawa, Ontario K1A 0H4
March 11, 1976

Your file Votre référence

Our file Notre référence

Mr. John Bayly,
Legal Advisor,
C.O.P.E.,
P.O. Box 2000,
INUVIK, N.W.T.

Dear Mr. Bayly:

When I was testifying before the Berger Inquiry on February 12, you asked me to comment on Imperial Oil Ltd.'s letter of December 9, 1975 relating to the Campbell Lake Quarrying site. At that time recess was called and the subject did not come up again during the course of my testimony. Afterwards, we spoke and I said I would send you written comments.

I am attaching my comments on the application as requested. I have also sent a copy of this letter and the comments to Stephen Goudge so that he may have the material distributed.

Yours sincerely,

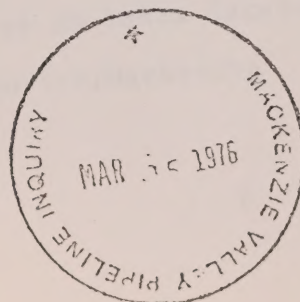
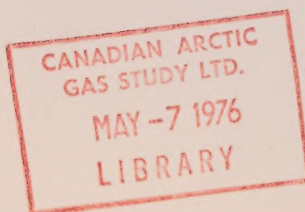
MACKENZIE VALLEY PIPELINE INQUIRY

EXHIBIT NO. 499 A E Mar. 23/76 (1)

PUT IN BY Yellowknife NWT.
Commission
Counsel.

A.B. Yates,
Director,
Northern Policy and
Program Planning Branch.

Encl.





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Quarrying Within the Proposed Dolomite Lake-Campbell Lake Ecological Site

General

This site was one of seven submitted to the Minister to be dealt with by the Working Group on IBP Ecological Sites. At the second meeting on January 29, 1976 the Working Group agreed that Dolomite Lake-Campbell Lake warranted protection as an Ecological Site. The group, however, has yet to deal with the questions of known conflicts, boundaries, manner of protection, and the management plan. A proposal covering the same area was made at the January 29, 1976 meeting by C.W.S. to have the area designated, under the Canada Wildlife Act, as the Campbell Lake Hills National Wildlife Area.

Background

In February 1970 ten applications were received for quarry leases (see attached map - Appendix E) on behalf of Bow Valley Industries Ltd. of Calgary, Alberta. In November 1970, Bow Valley indicated that they estimated each location to contain 5,000,000 cubic yards. (Equals 50 million cubic yards total.) The Federal Department of Public Works requested a temporary reserve on lands located within 2 miles on either side of the Dempster/Mackenzie

route in order to protect the sources of gravel for the project. On February 1, 1971 they subsequently were given permission to take up to 500,000 cubic yards from the block designated "E" in the Bow Valley application which was formally rejected on October 21, 1971. The reason for the rejection was that gravel was deemed to be in short supply in that area and it did not seem to be in the public interest to allow large areas to be controlled by private interests. Environmental factors were not a major consideration in arriving at this decision. However, it was indicated that the Company could apply for quarry permits to cover any immediate requirements for granular material.

In December 1975 Imperial Oil applied for a Land Use Permit for two quarries within the proposed ecological site totalling approximately 100 acres plus handling areas, explosives storage, some 9 acres of roads, and approximately 36 acres of river side storage and camps on the banks of the Mackenzie River. These areas can be identified on the sketch maps - Appendix D, with the general location shown in red on the map - Appendix C. They propose the removal of some 3,000,000 cubic yards of material over approximately 5 years. They have concluded that Campbell Lake is the "only economical source for rip rap material".

Status

There are virtually no remaining sources of sand or gravel in the vicinity of Inuvik and if the three readily accessible sources of bedrock (Sites 1-402, 1-403, 1-404 - indicated on map, Appendix C) listed by Ripley, Klohn, and Leonoff International Ltd. were to be fully developed, the amount would not greatly exceed the projected demands for the next 10 years of the community itself. D.P.W., however, also requires sources in this area and have, like Imperial Oil, identified a proposed quarry within the boundary of the proposed ecological site. Although granular and quarry materials are in short supply, it is generally agreed that due to the environmental concerns associated with development of this area that no quarrying permits will be issued to either D.P.W. or Imperial Oil until the Minister has reached a decision on the status of the IBP proposal.

Attachments

Extract from a paper "The Cumulative Impact of Development on the Rock and Granular Material Resources of the Mackenzie Delta Area" prepared as evidence for the Berger Inquiry to be presented during the Delta Berger Hearings by J. Inglis. "Appendix A"

Copy of Dolomite Lake-Campbell Lake area IBP Proposal.

"Appendix B"

Map of area of Campbell Lake Hills National Wildlife Area proposal showing quarry areas. "Appendix C"

IOE application for quarrying within the proposed IBP site.

"Appendix D"

Location map of Bow Valley application for Quarrying Leases

"Appendix E"

There are virtually no remaining sources of sand or gravel in the vicinity of Inuvik. There are however a number of rock quarries in operation, the principal ones being the Department of Transport pit at the airport and two pits used during highway construction. Other locations have been identified where shale and dolomite can be obtained by pit development.

If the three readily accessible sources of bedrock listed by the consultant (I-402, I-403, I-404) were to be fully exploited, approximately 8,600,000 cu. yds. of fill and aggregate would be available, an amount which does not greatly exceed the projected demands of the community alone.

These three sites, together with two recently proposed by D.P.W. (Mackenzie Highway- Campbell Lake) and Imperial Oil (Gull Creek - Rocky Hills), are located on the periphery of the proposed Dolomite Lake - Campbell Lake Ecological Site and Campbell Lake Hills National Wildlife Area. Both of these proposals have the Mackenzie Highway and East Channel of the Mackenzie River as two of the major site boundaries.

According to the proposal by the Canadian Wildlife Service to establish the Campbell Lake Hills as a National Wildlife Area, the quarry sites proposed by the D.P.W., Imperial Oil and the consultants pose a threat to the survival of a population of rare and endangered peregrine falcons, as well as to the existence of rare plant assemblages and the natural beauty of the area.

Quarry operations involve such intrinsically noisy activities as blasting, crushing, screening, stockpiling and hauling of rock and gravel. They may also be very dusty operations. The case for excluding quarrying operations from the area is put succinctly in the following quote, taken from a section of the Canadian Wildlife Service proposal dealing with the effects of human impact:

"Quarrying and recreational activities have already resulted in territory and nest abandonment by one pair of peregrine falcons, reduced the esthetics of the area, and almost obliterated a rare plant assemblage. Litter buildup and tree destruction are becoming widespread. Campfires and inadequate screening on wood-burning stoves pose the additional threat of forest fire. Proposed quarrying activities and developments which would increase accessibility threaten further disruptions of the falcon population and rare plant assemblages. The esthetics of the

archaeological sites, and important staging areas for migrating whistling swans are also in jeopardy. Unless measures are taken to control or redirect the type, location, and chronology of future use, any increase in accessibility will probably result in irreparable damage to an area unique in North America for its faunal and floristic elements."

Much can be done to mitigate the impact of quarrying operations on the falcons by restricting most of the work to the winter months. However, this may impose severe restrictions on material supply to critically timed construction programs, and inevitably some summer operations such as barge loading or truck hauling would be carried out if these quarries were to be fully developed. Further, the Canadian Wildlife Service consider in their proposal that:

"Accidental spills of toxic chemicals used in quarrying supportive activities and shockwaves from blasting could potentially result in injury to several aquatic and semi-aquatic species. Inasmuch as predatory raptors will tend to select live prey species exhibiting abnormal behavioral patterns (see literature review in Mueller 1974), the effects of delayed-lethal and nonlethal poisoning of prey species could be transmitted to peregrine falcons. Even if blasting activities are confined to winter operations, ground shockwaves and air concussion may cause loose overhanging rock to collapse on a few eyries (some of which appear to be traditionally used)."

At the present time I understand that an interdepartmental Working Group on Proposed IBP Ecological Sites is currently considering the proposal for the establishment of the Dolomite Lake - Campbell Lake Ecological Reserve and that no quarrying permits will be issued (including those applied for by Imperial Oil and DPW) until the Minister has reached a decision on the status and future management of the area.

However, assuming that quarrying will not be permitted near or within the presently proposed boundaries of the Reserve, then the demand for fill and aggregate could be met by one or more of the following measures:

- 1) by locating and developing sources of competent bedrock in other areas
- 2) by locating and developing pits in areas where shale or sandstone occurs close to the surface
- 3) by trucking and barging unconsolidated material from other parts of the Delta.

With respect to the first option, a number of companies are actively searching for alternate sources of bedrock in the Delta area. Such surveys would be an essential part of the pre-engineering work required for railroad construction and other developments where specific standards of sub-ballast and ballast material must be met.

The second option is one which has been actively followed in road construction on the Dempster/Mackenzie Highway, on the Inuvik by-pass road and which has been proposed for the southern half of the Inuvik-Tuktoyaktuk Highway.

It is an option followed where extremely large quantities of general fill are required at the minimum of expense.

Some of Inuvik's requirements have been met by use of shale but there are certain major problems associated with this type of pit development:

- (i) In lowlying areas a considerable volume of saturated organic material must be stripped from the pit area and piled.
- (ii) Frequently, up to 25 feet of overburden must be removed. In the Delta area, this overburden consists of ice rich silty-clay soils which commonly contain massive ground ice. For example geotechnical data from a pit recently used on the Dempster Highway, indicated that sixteen feet of overburden was composed of 8 feet of ground ice overlying 8 feet of ice rich silty clay. The presence of extensive ground ice masses and supersaturated silty clays on the walls of a pit can be hazardous. There is a potential for serious slumping, with accompanying mudflows. Successive retrogressive flow slides may also occur. The ice rich overburden must be stockpiled near the pit

while quarrying is in progress. These piles are inherently unstable and slumping is common as thawing progresses in the summer months. Mudflows from such waste piles can enter streams and waterbodies and spread into undisturbed terrain. These problems can be reduced by adopting low profile waste piles, although much greater areas are then required. Restoration and revegetation of these pits is often very difficult and costly. Few plants establish readily on mounds of rather sterile, arid soil.

In low lying areas overland drainage patterns are often disturbed, resulting in the creation of large shallow ponds which may be impossible to drain and restore. Surrounding vegetational patterns are altered. Because tree growth is limited in much of the region, these pits are difficult to screen from roads, and the results are aesthetically unpleasing.

These are some of the realities of this type of operation and numerous examples can be seen around Inuvik and along the highway.

The third option is one which has been implemented by the Town of Inuvik, and by local contractors, for some time. Gravel has been hauled by barge and truck from a source on the escarpment of the Caribou Hills, about 38 miles northwest of Inuvik. The source, which, according to the consultant, contains up to 6,000,000 cubic yards of gravel and sand, is located within the core area of the proposed Caribou Hills Ecological Site. As far as I am aware, no new permits for quarrying in this location will be issued pending a decision by the Minister on the status and future management of the proposed Reserve. The only alternative to I-407, at the present time, is the Ya-Ya lake esker-kame complex, although the location is considerably further from Inuvik..

Tuktoyaktuk

Up to 1 million cubic yards of sand and gravel are required by the community to meet long term demands. The consultant identified ten useable sources of material, based on Geological Survey of Canada surveys, pipeline location surveys and other previous work, which could yield up to 2,280,000 cu. yds. if fully developed. While this would satisfy community needs, it would fall short of the industrial demand. However, there are serious problems involved in using some of these sources: six of them are ocean spits or beaches, each estimated to contain less than 100,000 cubic yards of sand or gravel.

SITE NAME: DOLOMITE LAKE-CAMPBELL LAKE AREA

SITE NUMBER: 48

LOCATION: District of Mackenzie, Northwest Territories; just south of Inuvik airport.

SIZE: 120 square miles approximately.

ECOSYSTEM: Boreal Forest Zone. (Lower Mackenzie and Forest Tundra Sections); rare plant assemblages; endangered species nesting site.

DESCRIPTION: Outcropping bedrock with scarps and scree, otherwise rolling, locally drumlinized till plains; includes parts of the Mackenzie River Delta and a reversing delta into Campbell Lake. Dolomite scree slopes on east and west shores of Campbell Lake and east shore of Dolomite Lake. Picea mariana-Lichen, Picea mariana-sphagnum and Vaccinium-Arctous heath are major plant communities. Sharp relief of dolomite rocks yields unusual habitats for important, rare plant assemblages. Endangered species nesting sites. Major soils: Podzols, Regosols, Gleysols, Organic Soils.

ECONOMIC POTENTIAL: Mineral - low; Hydrocarbon - exploration drill hole to the north of site; Timber - moderate to high, timber permit area across south end of site; Agriculture - extremely severe limitations (D); Recreation - medium high, proposed Territorial park within site; site now used for hiking, cross country skiing, sport fishing; Other - quarrying.

EXCEPTIONAL INTEREST: Important habitat for rare arctic and arctic-Beringian plants; also displays an unusual assemblage of plants which are the only modern analogues of a late-Pleistocene assemblage reported from many areas of the North American continent. Site is also important as an endangered species nesting site. Area of interest as a possible national wildlife area.

PROTECTIVE STATUS: Land Use Regulations.

FURTHER INFORMATION: IBP-CT Check Sheet on file National Science Library, National Research Council, Ottawa, Ontario.

Dr. J. C. Ritchie
Scarborough College
University of Toronto
West Hill, Ontario, M1C 1A4

Mr. Jim Windsor
Canadian Wildlife Service
10025 Jasper Avenue
Edmonton, Alberta, T5J 1S6

Mr. Richard Fyfe
Canadian Wildlife Service
10025 Jasper Avenue
Edmonton, Alberta
T5J 1S6

December 9, 1975

EL-2763

Files: NWTH-12.59; NWTH-12.75;
NWTH-12.95Department of Indian Affairs
and Northern Development
P.O. Box 1500
Yellowknife, N.W.T.

N750175

Attention: Mr. D. Longlitz

02262

Dear Sir:

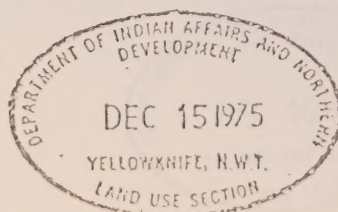
Re: Campbell Lake Quarrying Site
and Related Facilities

You, no doubt, are aware of some success in the discovery of hydrocarbons in the shallow offshore water in the Beaufort Sea as evidenced by our Adgo discovery. Further offshore exploratory wells are being planned. It is only reasonable for us to expect some further success and we must plan accordingly.

Whenever hydrocarbons are discovered that lie offshore in the Beaufort Sea, we believe that the most economical way to develop them would be to construct a permanent artificial island on which development drilling would take place and subsequent production facilities.

At the moment we plan to order some 5 to 6 million dollars worth of equipment in order to quarry and haul rip rap material to be used on the slopes of the island in order to maintain the integrity of the island. We would not wish to be put in the position of having ordered the material and subsequently learning that we would not be issued with the appropriate approval to quarry the material required.

We attach, in duplicate, a Land Use Permit application together with six prints of a plan showing a revision to our original proposal as held under Land Use Permit #N73L637. We also attach our cheque in the amount of \$770.00 to cover the fees involved. Also attached is a copy of a two page memorandum entitled "Campbell Lake Quarry", another page entitled "Sequence of Events" and a time graph showing the "Schedule for Quarry Operation at Campbell Lake", most of which is self-explanatory.



In the late spring and summer of 1975 we spent a considerable sum of money to determine if it would be economical to quarry rip rap material from Mt. Sedgwick in the Yukon Territory. We also studied the possibility of economically building concrete blocks at King Point using local gravel. Harbour facilities were also investigated for economical and practical feasibility. It was concluded that facility construction would be twice the cost of those at Campbell Lake. In addition, weather and offshore ice problems around King Point would make operations difficult and have a severe cost impact. We have also looked for the sources as far south as Arctic Red River and were unable to locate suitable material.

Having concluded that the only economical source for rip rap material is at Campbell Lake, we thought it best to first talk to Richard Fyfe of the Canadian Wildlife Service in Edmonton to identify any concerns that he would have with respect to Peregrine Falcons in the area of the proposed activity. It was our understanding that he would not object as long as the summer activity was outside a two mile radius from the nearest Falcon nesting site; also that quarrying and site preparation activity would be limited to the period November to April and that the summer activity would be limited to barge loading from the stockpile adjacent to the river channel.

With reference to the map attached to the application, we would draw your attention to the change in location of the rock storage area. To have used the former storage site would have meant that we would have to use the river channel as part of our access route. Any hauling by wheeled units would then be limited to and be dictated by the ice conditions. Not only could this impose some unnecessary time constraints, it also does not remove the concerns we have for a safe operation bearing in mind the heavy loads involved (60 Tons).

You should also appreciate that the quantity of rip rap has escalated to more properly reflect our projected needs. At the moment our plan only calls for this material to be used as slope protection on permanent artificial islands that will be built in order to drill and produce the underlying hydrocarbons. It should be stressed that one of our first concerns is that of maintaining the integrity of any permanent island. Rip rap material from the Campbell Lakes area will satisfy that requirement.

Pending further offshore discoveries, you can see from the schedule that we may have to order some equipment by May 1976. Between now and then further money is being spent on the design of the project. Both of these expenditures are at risk if we are not granted the Land Use Permit and the Quarrying Permit. The equipment to be ordered is expected to cost 5 to 6 million dollars. We would want assurance that the entire project would obtain your approval in principle not later than April 30, 1976, so that we can order the equipment and proceed with more definitive plans.



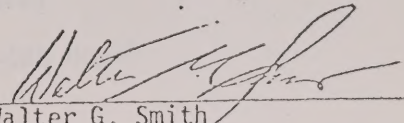
N75Q175

We already have a Quarrying Permit numbered 73/53 for which we have prepaid royalties in the amount of \$6,000.00. It is requested that you continue to hold that money, in trust, in that it will be applied to a Quarrying Permit that will be required at a later date for a greater quantity of material. The fees paid in the existing Land Use Permit will be recovered from your office at the time it expires.

- Should you require any further information, please advise.

Yours very truly,

C. R. Rankin
Land Operations


Walter G. Smith

WGS/bb
Att. Att.

N75Q175

MEMORANDUM

Campbell Lake Quarry

N75Q175

Objective - to win 1500 M yd³ of rip-rap over a five year period

- 850 M yd³ of 1"-10"
- 650 M yd³ of 10"-42"

End use - slope protection for permanent development islands in the Beaufort Sea

Estimated Project Cost - \$60 million (1975 dollars)

Activities - first of November to end of April (~180 days)

- drill and blast rock
- sort and classify
- load and haul to storage
- stockpile

- mid-June to mid-September (~90 days)

- load barges
- transport to offshore locations

Facilities required - sheet pile dock (~500 ft. long)

- storage pad for rock (~1500'X700')
- roads (~2 miles)
- 60 man camp
- fuel storage (10 M barrels)
- explosives magazine (70 M pounds storage)
- garage

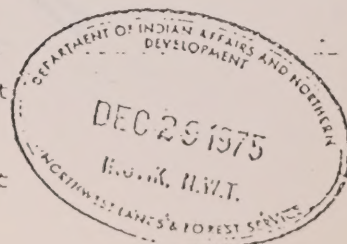
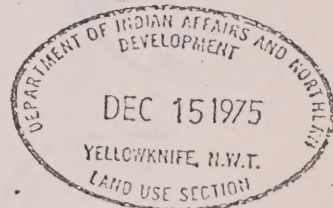
Men on site - Winter - 60
Summer - 25

Water supply - river channel

Sewage disposal - sump adjacent to camp

Equipment

- Operational during winter
- drilling and blasting
 - 2 - air track rock drills
 - 2 - 1000 c f m compressors
- sort and classify
 - 1 - D-8 Cat c/w S-blade
 - 1 - D-8 Cat c/w rock rake
 - 1 - 2&1/2 yd³ hydraulic³ hoe
 - 1 - 988 loader c/w 6 yd³ rock bucket
- load and haul
 - 1 - D-8 Cat c/w S-blade
 - 1 - 988 loader c/w 6 yd³ rock bucket
 - 4 - 35 T rock trucks
- stockpile
 - 1 - D-8 Cat c/w S-blade



- 1 - 824 Cat wheeled tractor
- 1 - 146 Cat grader
- 3 - crew cabs
- 1 - fuel truck

N75Q175

- Operational during summer

loading barges

2 - 35 T rock trucks

1 - 988 loader c/w 6 yd³ rock bucket

1 - D-8 Cat c/w S-blade

miscellaneous

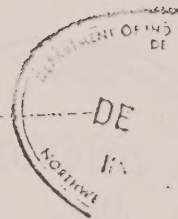
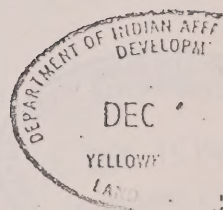
1 - crew cab

marine equipment

6 - 1500 HP tugs

1 - tender tug

20 - 1500 series barges



1) approval of land use

2) completion of detailed design

N750175

May '76 3) equipment orders

Jan '77 4) mobilize construction equipment

5) clear quarry site and area for roads, storage, and camp

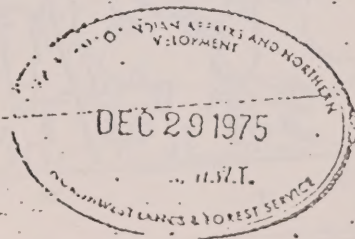
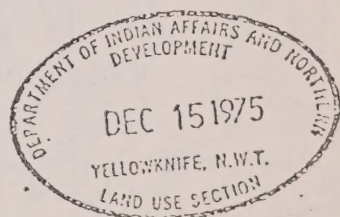
6) quarry ~200 M yd³ of rock for construction around the site

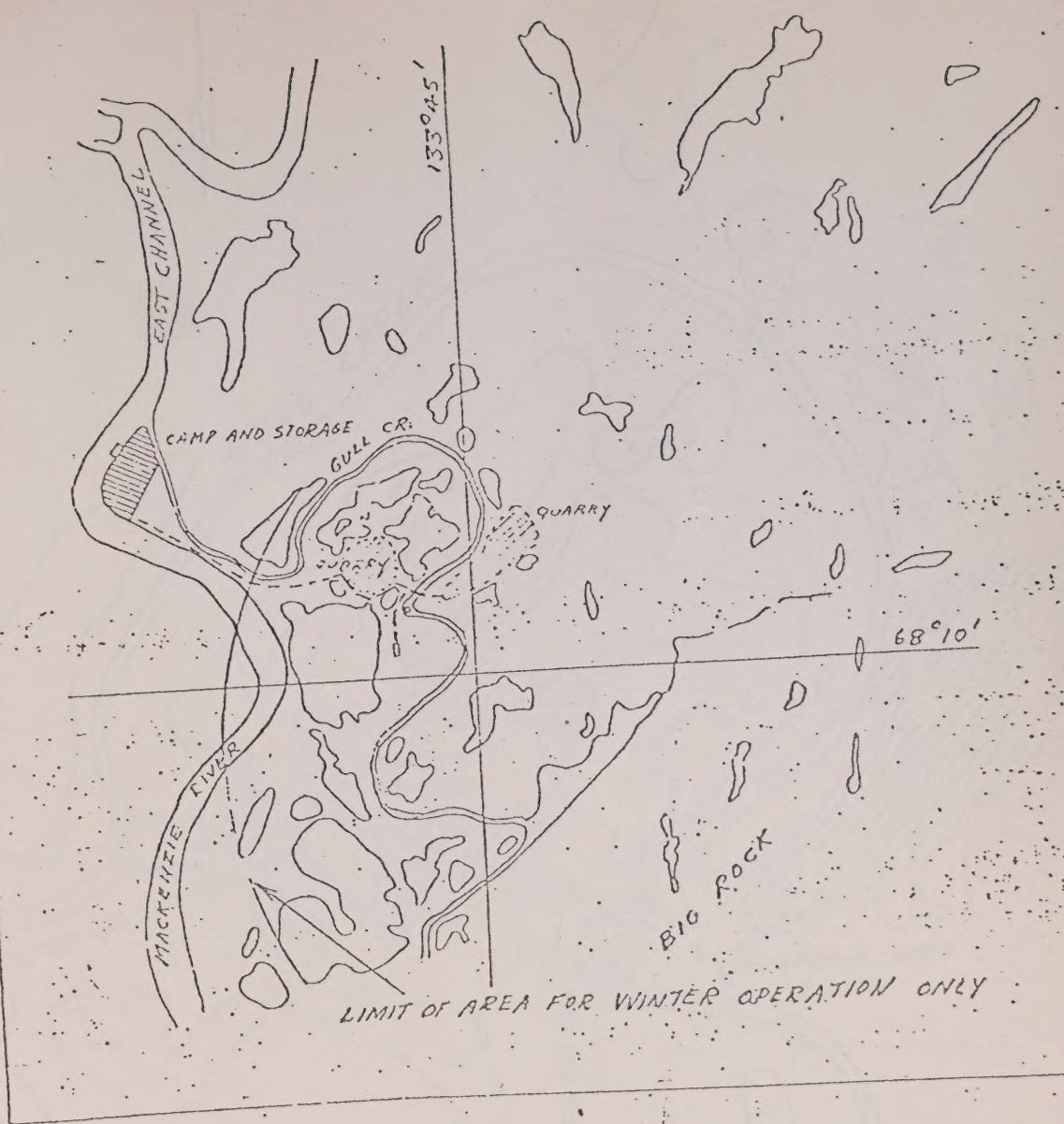
7) construct roads, storage area, dock, and camp pads

8) install camp buildings, garage, fuel storage, and magazine

Nov '77 9) quarry operation (for slope protection)

Jun '78 10) barge material to island locations







CABINS

ROCK
ROCK STORAGE AREA
23 ACRES

CAMP AREA
13 ACRES

EAST CHANNEL-MACKENZIE RIVER

ROAD 9 ACRES

LAKE

